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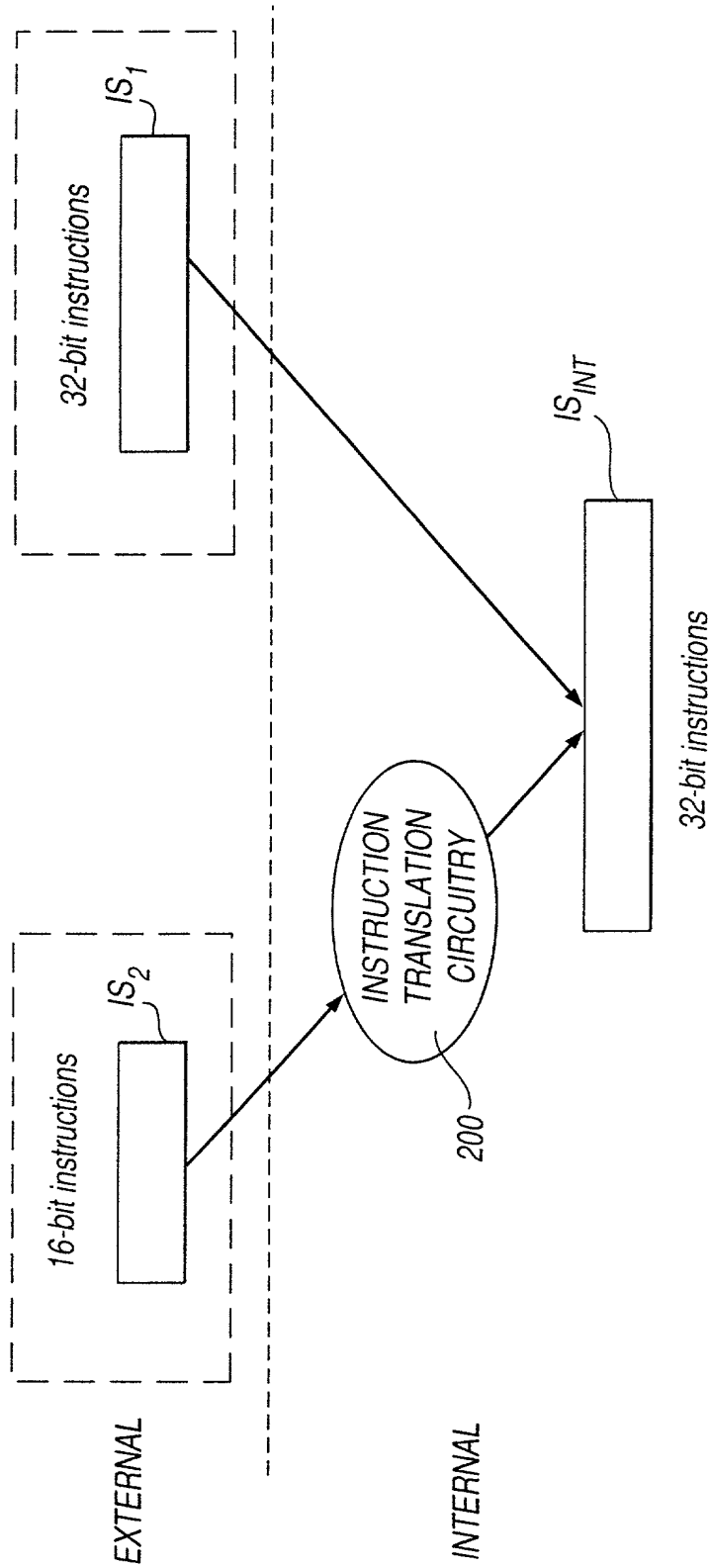
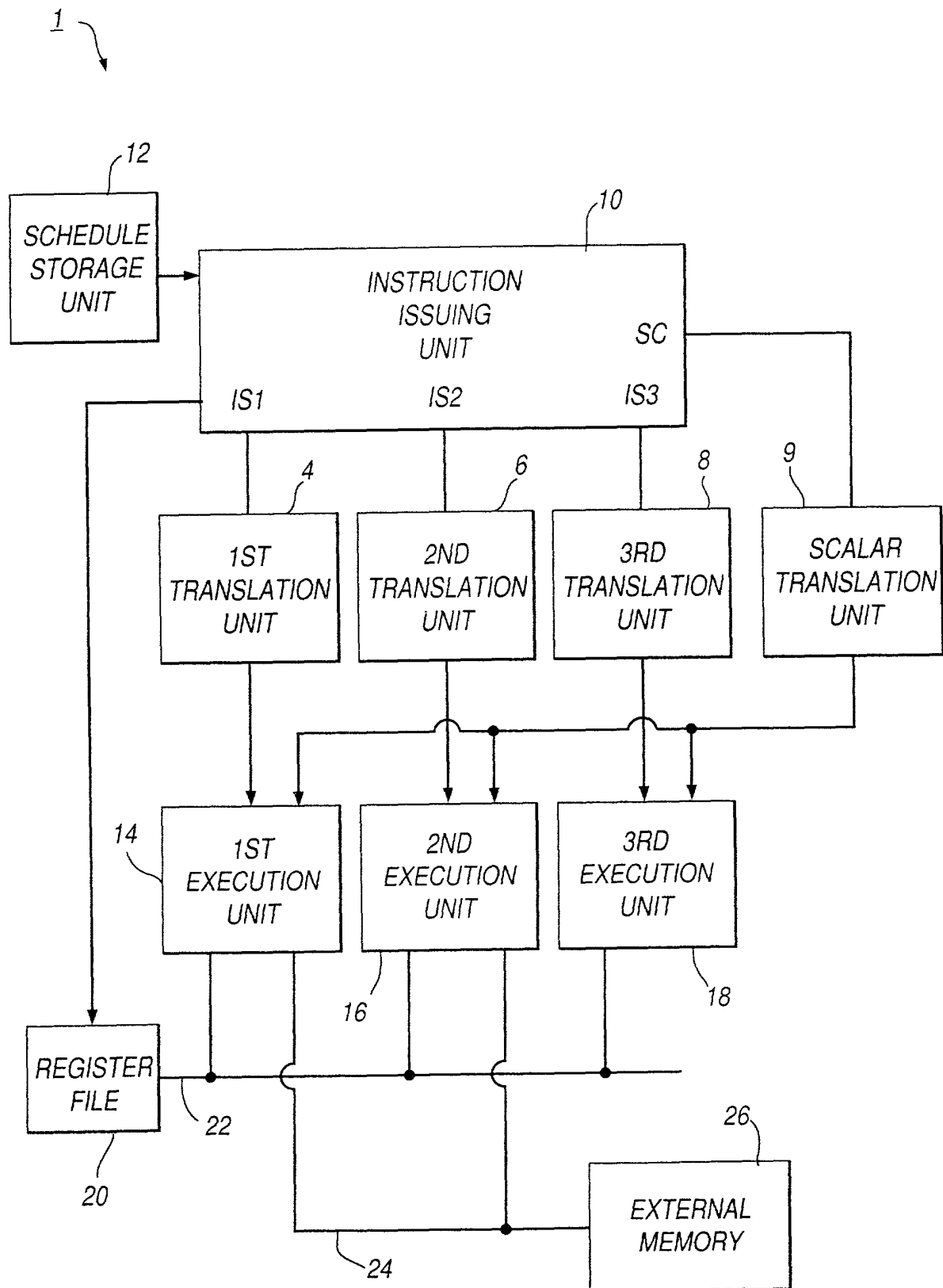


Fig.1

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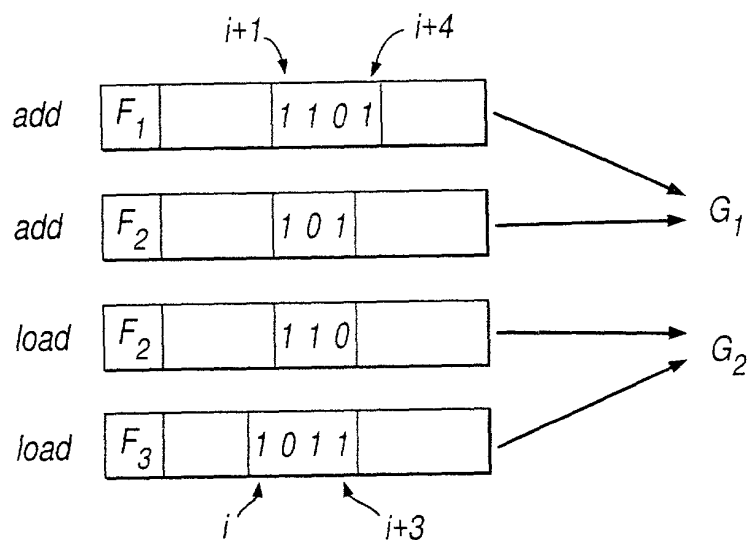


Fig.3(A)

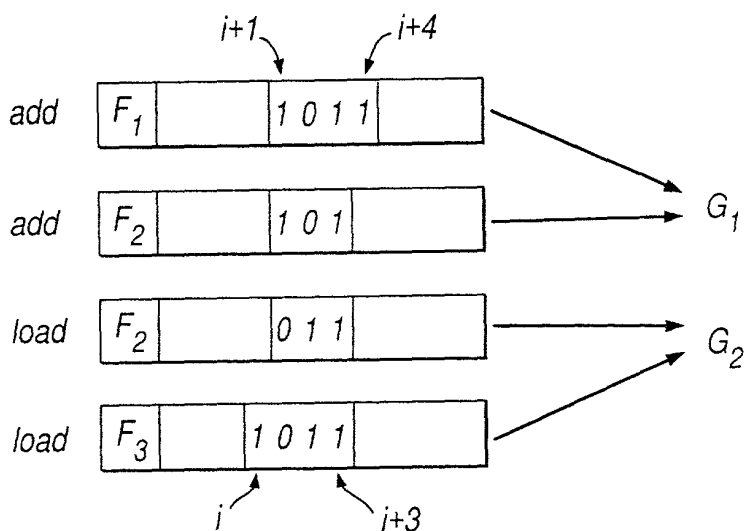


Fig.3(B)

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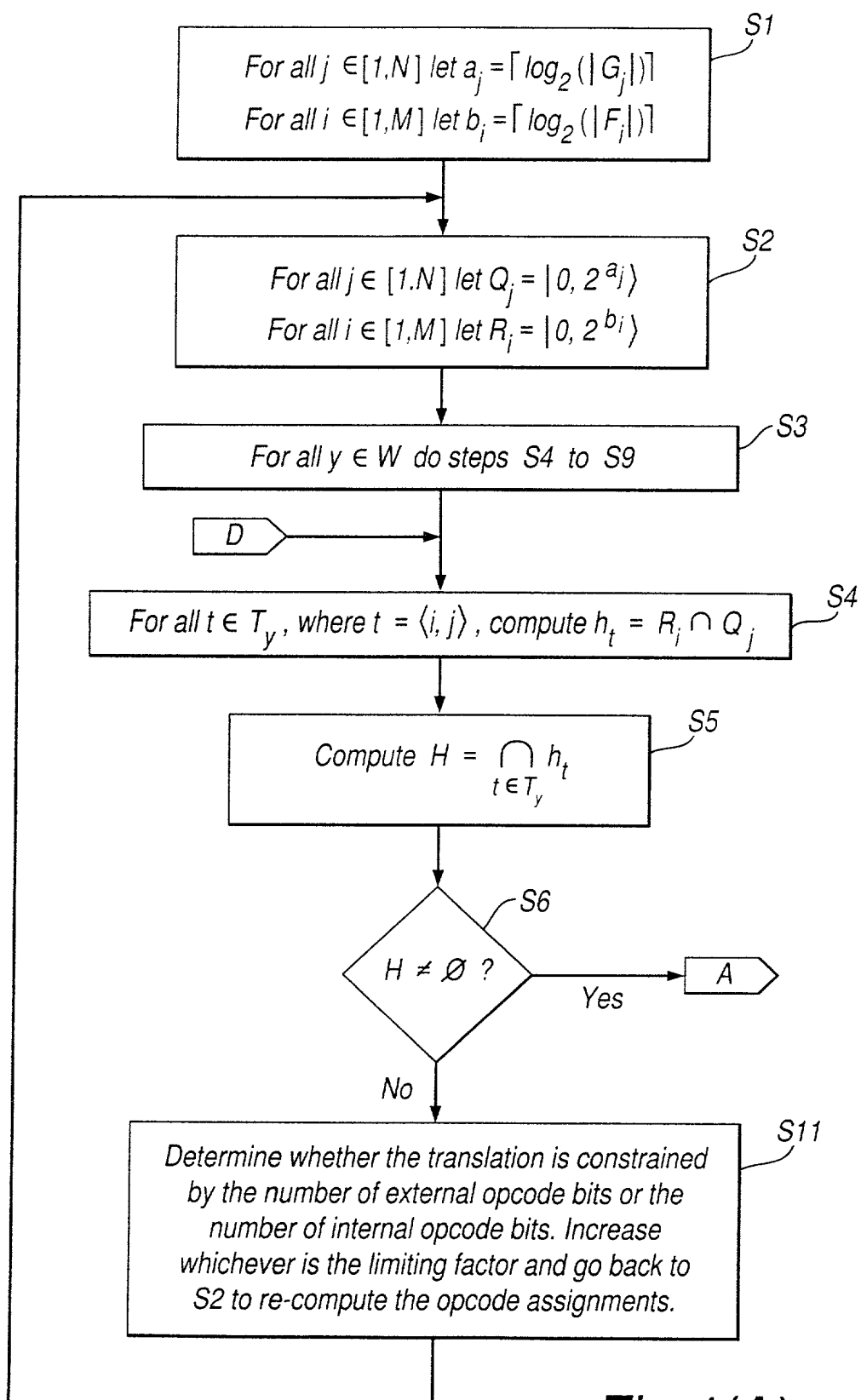


Fig.4(A)

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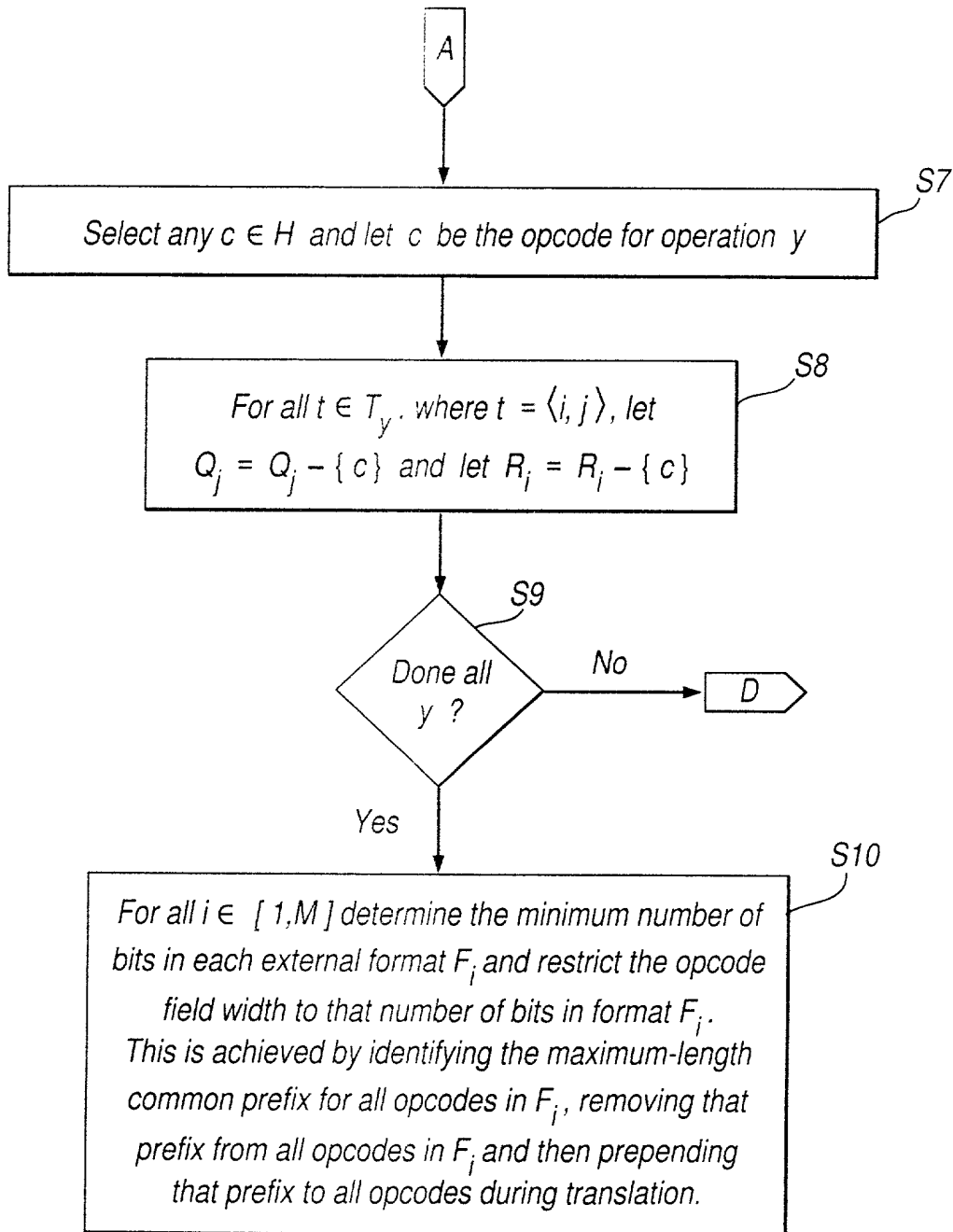


Fig.4(B)

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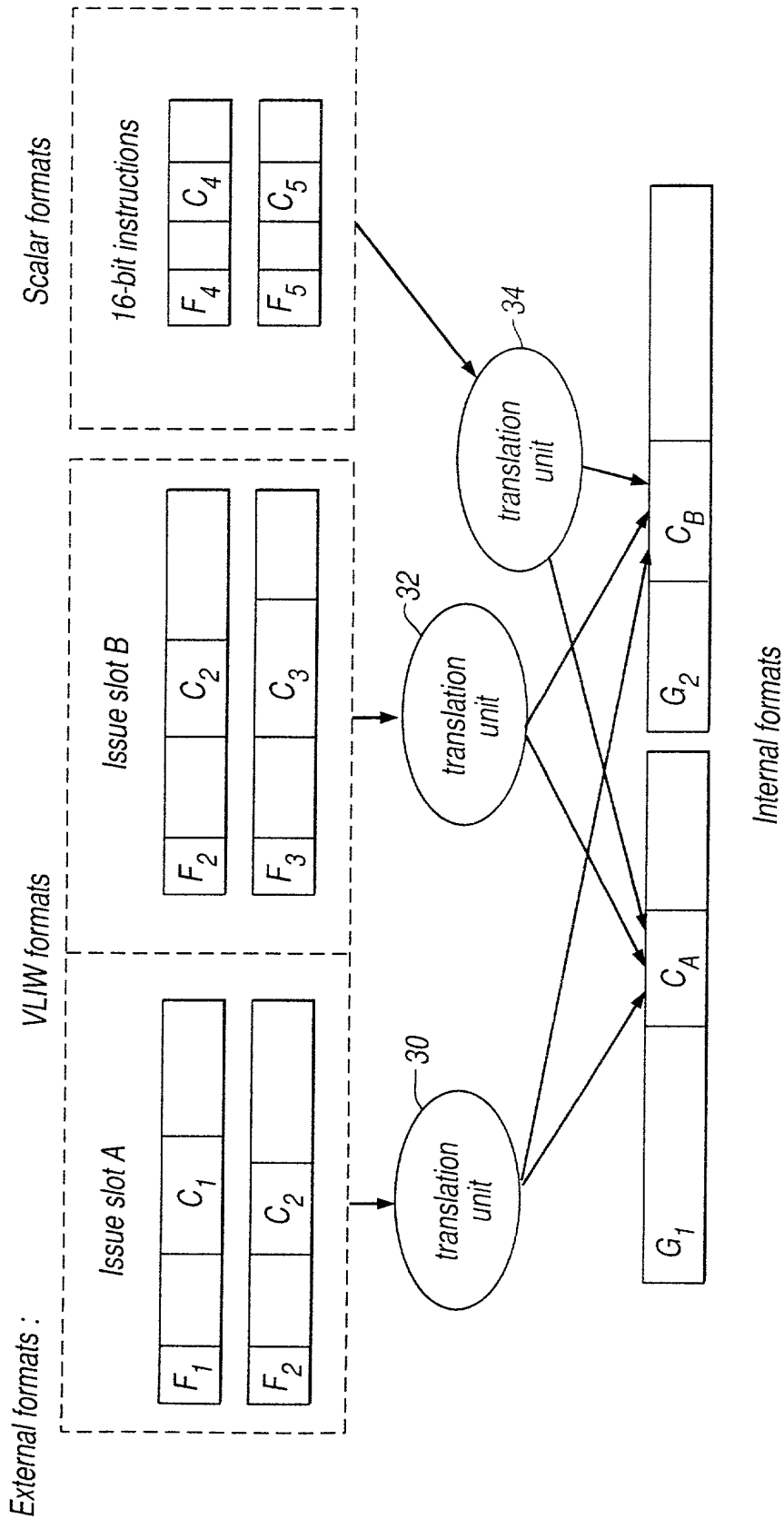


Fig.5

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Operation	Internal format	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1						
	G_2						
or	G_1			*			
	G_2						
mul	G_1						
	G_2						
li	G_1						
	G_2						
sub	G_1						
	G_2						
rv	G_2						
div	G_2						

Fig.6

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1						
	G_2						
mul	G_1						
	G_2						
li	G_1						
	G_2						
sub	G_1						
	G_2						
rv	G_2						
div	G_2						
$R_1 = \{ 001, 010, 011 \}$ $R_2 = \{ 001, 010, 011 \}$ $R_3 = \{ 001, 010, 011, 100, 101, 110, 111 \}$ $R_4 = \{ 001, 010, 011 \}$ $R_5 = \{ 001, 010, 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 001, 010, 011, 100, 101, 110, 111 \}$ $Q_2 = \{ 001, 010, 011, 100, 101, 110, 111 \}$							

Fig.7(A)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1						
	G_2						
li	G_1						
	G_2						
sub	G_1						
	G_2						
rv	G_2						
div	G_2						
$R_1 = \{ 010, 011 \}$ $R_2 = \{ 010, 011 \}$ $R_3 = \{ 010, 011, 100, 101, 110, 111 \}$ $R_4 = \{ 010, 011 \}$ $R_5 = \{ 010, 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 010, 011, 100, 101, 110, 111 \}$ $Q_2 = \{ 010, 011, 100, 101, 110, 111 \}$							

Fig.7(B)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1	010	010	010	010		
	G_2	010	010			010	010
li	G_1						
	G_2						
sub	G_1						
	G_2						
rv	G_2						
div	G_2						
$R_1 = \{011\}$ $R_2 = \{011\}$ $R_3 = \{011, 100, 101, 110, 111\}$ $R_4 = \{011\}$ $R_5 = \{011, 100, 101, 110, 111\}$ $Q_1 = \{011, 100, 101, 110, 111\}$ $Q_2 = \{011, 100, 101, 110, 111\}$							

Fig.7(C)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1	010	010	010	010		
	G_2	010	010			010	010
li	G_1	011			011		
	G_2	011				011	
sub	G_1						
	G_2						
rv	G_2						
div	G_2						
$R_1 = \{ 011 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 100, 101, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 100, 101, 110, 111 \}$ $Q_2 = \{ 100, 101, 110, 111 \}$							

Fig.7(D)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1	010	010	010	010		
	G_2	010	010			010	010
li	G_1	011			011		
	G_2	011				011	
sub	G_1						
	G_2						
rv	G_2						
div	G_2						
$R_1 = \{ 011, 100, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 100, 101, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 100, 101, 110, 111 \}$ $Q_1 = \{ 100, 101, 110, 111 \}$ $Q_2 = \{ 100, 101, 110, 111 \}$							

Fig.7(E)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1	010	010	010	010		
	G_2	010	010			010	010
li	G_1	011			011		
	G_2	011				011	
sub	G_1		100	100			
	G_2		100				100
rv	G_2						
div	G_2						
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 101, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 110, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 101, 110, 111 \}$							

Fig.7(F)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1	010	010	010	010		
	G_2	010	010			010	010
li	G_1	011			011		
	G_2	011				011	
sub	G_1		100	100			
	G_2		100				100
rv	G_2						101
div	G_2						
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 110, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 110, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 110, 111 \}$							

Fig.7(G)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
				Issue slot A		Issue slot B	
		F_4	F_5	F_1	F_2	F_2	F_3
add	G_1	000	000	000	000		
	G_2	000	000			000	000
or	G_1	001	001	001	001		
	G_2	001	001			001	001
mul	G_1	010	010	010	010		
	G_2	010	010			010	010
li	G_1	011			011		
	G_2	011				011	
sub	G_1		100	100			
	G_2		100				100
rv	G_2						101
div	G_2		110				110
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 111 \}$							

Fig.7(H)

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Operation	Internal formats	External formats (Scalar)		External formats (VLIW)			
		F_4	F_5	Issue slot A		Issue slot B	
				F_1	F_2	F_2	F_3
add	G_1	00	000	000	00		
	G_2	00	000			00	000
or	G_1	01	001	001	01		
	G_2	01	001			01	001
mul	G_1	10	010	010	10		
	G_2	10	010			10	010
li	G_1	11			11		
	G_2	11				11	
sub	G_1		100	100			
	G_2		100				100
rv	G_2						101
div	G_2		110				110
$R_1 = \{ 011, 101, 110, 111 \}$ $R_2 = \{ \}$ $R_3 = \{ 011, 111 \}$ $R_4 = \{ \}$ $R_5 = \{ 011, 101, 111 \}$ $Q_1 = \{ 101, 110, 111 \}$ $Q_2 = \{ 111 \}$							

Fig.8